



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,097	12/11/2000	John J. Weisgerber	GSIL0148 PUS	5342

22045 7590 07/26/2005

BROOKS KUSHMAN P.C.  
1000 TOWN CENTER  
TWENTY-SECOND FLOOR  
SOUTHFIELD, MI 48075

EXAMINER
----------

AHMED, SAMIR ANWAR

ART UNIT	PAPER NUMBER
----------	--------------

2623

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/735,097

Applicant(s)

WEISGERBER ET AL.

Examiner

Samir A. Ahmed

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 10-17, 20 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-17, 20, and 22-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2623

1. The amendment filed 5/11/05 have been entered and made of record.
2. Applicant's arguments filed 5/11/05 have been fully considered but they are not persuasive with regard each independent claim for the following reasons:

Applicant alleges, "For example, the reference in the name of Mengel teaches [,]" (page 2, last seven lines-page 3, line 4). The Examiner disagrees. Firstly, Mengel clearly states "with advanced 3D laser-scan techniques and combined evaluation of gray-level (2D image) and height images (3D images), very extensive and reliable quality inspections can be performed (page 788, RC, lines 20-22), i.e., Mengel recognizes the use of both 2-D and 3-D data in evaluation and provided why he is using the combination. Secondly, in Mengel, the two-dimensional gray-level and three dimensional height images of the PCB surface are acquired simultaneously (page 787, RC, lines 7-8), i.e., the 2D image regions overlapping the 3D image regions. Thirdly, Johan teaches thresholding using both grey scale (2D images) and 3-D images (page 44, lines 47-49). As shown in Fig.2 computed using both grey scale (2D images) and 3-D images, a thresholded region accurately identifying a device body (set of data which corresponds to an overlapping image region of the 2D and 3D threshold images), i.e., Juha clearly recognize identifying a device body (overlapping image region) in a thresholded gray scale image (thresholded 2D image) and applying a height threshold to the area of the device body (overlapping image region) in the 3-D thresholded image. The combination of Mengel and Juha reads on the claims as broadly claimed.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 11, 12, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengel ("Automated Inspection of Solder Joints on PC Boards by Supplementary Processing of 3D and Gray-level Images") in view of Juha et al. ("The Use of 3-D Imaging for the Inspection of Hybrid/SMT Circuits"). The grounds for rejections stated in paragraph 4 of the Office Action mailed on 12/10/04, are incorporated by reference herein.

5. Claims 5, 15, 22-25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengel ("Automated Inspection of Solder Joints on PC Boards by Supplementary Processing of 3D and Gray-level Images") in view of Juha et al. ("The Use of 3-D Imaging for the Inspection of Hybrid/SMT Circuits") as applied to claims 1 and 11 above, and further in view of Montillo et al. (U.S. Patent 6,526,165). The grounds for rejections stated in paragraph 5 of the Office Action mailed on 12/10/04, are incorporated by reference herein.

6. Claims 3, 4, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengel ("Automated Inspection of Solder Joints on PC Boards by Supplementary Processing of 3D and Gray-level Images") in view of Juha et al. ("The Use of 3-D Imaging for the Inspection of Hybrid/SMT Circuits") as applied to claims 1

Art Unit: 2623

and 11 above, and further in view of Prosky (U.S. Patent 4,159,648). The grounds for rejections stated in paragraph 6 of the Office Action mailed on 12/10/04, are incorporated by reference herein.

7. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengel ("Automated Inspection of Solder Joints on PC Boards by Supplementary Processing of 3D and Gray-level Images") in view of Juha et al. ("The Use of 3-D Imaging for the Inspection of Hybrid/SMT Circuits") as applied to claims 1 and 11 above, and further in view of Roy et al. (U.S. Patent 5,956,143). The grounds for rejections stated in paragraph 7 of the Office Action mailed on 12/10/04, are incorporated by reference herein.

8. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengel ("Automated Inspection of Solder Joints on PC Boards by Supplementary Processing of 3D and Gray-level Images") in view of Juha et al. ("The Use of 3-D Imaging for the Inspection of Hybrid/SMT Circuits") as applied to claims 1 and 11 above, and further in view of Kent et al. (U.S. Patent 6,047,084). The grounds for rejections stated in paragraph 8 of the Office Action mailed on 12/10/04, are incorporated by reference herein.

9. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengel ("Automated Inspection of Solder Joints on PC Boards by Supplementary Processing of 3D and Gray-level Images") in view of Juha et al. ("The Use of 3-D Imaging for the Inspection of Hybrid/SMT Circuits") as applied to claims 1 and 11 above, and further in view of Paulsen et al. (U.S. Patent 6,522,777). The grounds for rejections

Art Unit: 2623

stated in paragraph 9 of the Office Action mailed on 12/10/04, are incorporated by reference herein.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

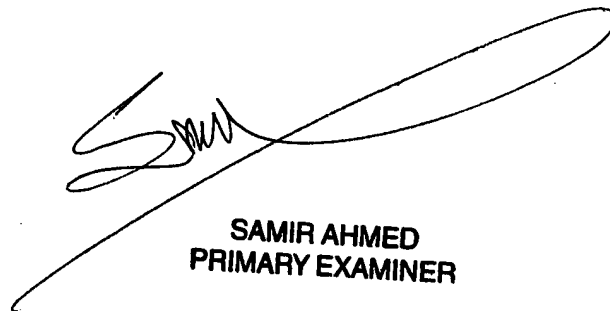
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir A. Ahmed whose telephone number is (571) 272-7413. The examiner can normally be reached on Mon-Fri 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (571) 272-7414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SA



**SAMIR AHMED  
PRIMARY EXAMINER**